

DEP-- LEAD AND COPPER ANALYSIS REPORT

LCR -C

PWS ID# : _____ PWS NAME : _____ CITY/TOWN: _____ SAMPLE CODE * : _____							
NAME OF STATE CERTIFIED LABORATORY: _____ CERTIFIED LABORATORY ID#: _____							
LEAD ANALYSIS METHOD: _____				LEAD DETECTION LIMIT: _____			
COPPER ANALYSIS METHOD: _____				COPPER DETECTION LIMIT : _____			
# OF SAMPLES REQUIRED: _____		# OF SAMPLES SUBMITTED: _____		90 TH PERCENTILE LEAD: _____		90 TH PERCENTILE COPPER : _____	
	LAB SAMPLE ID	COLLECTION DATE	PRIMARY APPROVED SAMPLE SITE **	LEAD RESULT (mg/L) ***	LEAD ANALYSIS DATE	COPPER RESULT (mg/L) ***	COPPER ANALYSIS DATE
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
SCHOOL RESULTS collected in accordance with 310 CMR 22.06B (7) (a) 9. Do not use these school results in 90 th percentile calculations. (PWS must attach laboratory reports for schools to this form)							
1							
2							
3							
4							

SAMPLE CODE *	PLEASE NOTE THE FOLLOWING:
1 FIRST SEMI-ANNUAL SAMPLING PERIOD	Water suppliers should mail one copy of this form, including all results for the monitoring period, to the DEP regional office within 10 days after the end of the monitoring/sampling period.
2 SECOND SEMI-ANNUAL SAMPLING PERIOD	** See lead & copper sampling plan for DEP approved sampling locations.
3 REDUCED – ANNUAL	*** Results below the laboratory's reported detection limit (MDL) shall be reported as zero. Results at or above the laboratory's detection limit (MDL) but below 0.005 mg/L for lead or 0.05 mg/L for copper shall be reported as measured or may be reported as 0.0025 mg/L for lead or 0.025 mg/L for copper. Please submit Forms LCR-D or LCR-E to the appropriate DEP Regional Office along with this form.
4 REDUCED - EVERY THREE YEARS	
5 LSL REPLACEMENT PROGRAM	
6 DEMONSTRATION	

I certify under penalty of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best of my knowledge and belief.

REMARKS: _____

SIGNATURE OF PWS or LABORATORY DIRECTOR

DATE

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12/01/2004

DEP LEAD AND COPPER ANALYSIS REPORT**

90th PERCENTILE COMPLIANCE (For systems required to collect more than 5 samples)

LCR -D

(Note: Do not include school results on this form unless the PWS is a school)

Step 1: Place **lead** results in ascending order (from lowest to highest value) with lowest value at # 1.

Step 2: Multiply the total number of samples by 0.9. This is your 90th percentile sample number.

Step 3: Compare the 90th percentile level to the action level of 0.015 mg/L (i.e., 15 parts per billion (ppb)). If your 90th percentile value is higher than 0.015 mg/L, you have an exceedance.

*Repeat this procedure for **copper** sample results, except compare the 90th percentile copper level against its action*

Level of 1.3 mg/L. If your 90th percentile value is greater than 1.3 mg/L, you have an exceedance

LEAD RESULTS (mg/L)								COPPER RESULTS (mg/L)							
#	Results	#	Results	#	Results	#	Results	#	Results	#	Results	#	Results	#	Results
1*		26		51		76		1*		26		51		76	
2		27		52		77		2		27		52		77	
3		28		53		78		3		28		53		78	
4		29		54		79		4		29		54		79	
5		30		55		80		5		30		55		80	
6		31		56		81		6		31		56		81	
7		32		57		82		7		32		57		82	
8		33		58		83		8		33		58		83	
9		34		59		84		9		34		59		84	
10		35		60		85		10		35		60		85	
11		36		61		86		11		36		61		86	
12		37		62		87		12		37		62		87	
13		38		63		88		13		38		63		88	
14		39		64		89		14		39		64		89	
15		40		65		90		15		40		65		90	
16		41		66		91		16		41		66		91	
17		42		67		92		17		42		67		92	
18		43		68		93		18		43		68		93	
19		44		69		94		19		44		69		94	
20		45		70		95		20		45		70		95	
21		46		71		96		21		46		71		96	
22		47		72		97		22		47		72		97	
23		48		73		98		23		48		73		98	
24		49		74		99		24		49		74		99	
25		50		75		100		25		50		75		100	

*Lowest value

My system was required to collect _____ lead and copper samples. My system collected _____ lead and copper samples.

Total # of samples: _____ x 0.9 = _____. This number is my system's 90th percentile sample #. Circle sample # on both of the above lists and enter the results in the appropriate spaces below.

_____ Compared to 0.015 mg/L _____ Compared to 1.3 mg/L
 (Result at 90th percentile lead value) (The lead action level) (Result at 90th percentile copper value) (The copper action level)

Check and complete the correct statement for lead as determined by the above results. If you have an exceedance and you are a community system you must comply with the Consumer Confidence Rule requirement in accordance with 310 CMR 22.16A (4) (i) 6.

- ☐ My system was at or below the lead action level
- ☐ My system exceeded the lead action level and _____ sampling sites exceeded the lead action level.
 (insert # of samples)

Check and complete the correct statement for copper as determined from the above results. If you have an exceedance and you are a community system you must comply with the Consumer Confidence Rule requirement in accordance with 310 CMR 22.16A (4) (i) 6.

- ☐ My system was at or below the copper action level
- ☐ My system exceeded the copper action level and _____ sampling sites exceeded the copper action level.
 (insert # of samples)

My signature below indicates that all sampling sites on this report have been previously approved in writing by the DEP and that I have complied with 310 CMR 22.06B(7) I have also notified the owner of each sampling site of their sites' individual results. I certify under penalty of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best of my knowledge and belief.

City/Town: _____

SIGNATURE OF PWS or OWNER'S REPRESENTATIVE _____

DATE _____

Name: _____

PWSID #: _____

Page ____ of ____

* Please submit FORM LCR-C along with this form.

12/01/2004

90th PERCENTILE COMPLIANCE (For systems required to collect 5 samples)

Step 1: Place lead or copper results in ascending order. (from lowest value to highest value)

Step 2: Take the average of the 4th and 5th highest sample. This is your 90th percentile level.

Step 3: Compare each 90th percentile level against the corresponding action level. If the 90th percentile value is higher than the action level, then you have an exceedance.

Note: If you collected more than 5 samples you must use the 90th percentile compliance form for more than 5 samples

#	LEAD	#	COPPER
	All results for the sampling period		All results for the sampling period
1*		1*	
2		2	
3		3	
4		4	
5		5	

* Lowest value result

My system was required to collect **five** lead and copper samples. My system collected _____ lead and copper samples. Circle 4th and 5th highest value samples. If you collected more than five samples, then report calculations on FORM LCR(D). Take the average of the 4th and 5th highest value samples as follows:

Value of 4th highest result + Value of 5th highest result = 90th percentile level

2

_____ Compared to: 0.015 mg/L.
(Lead 90th percentile value) (The lead action level)

_____ Compared to: 1.3 mg/L.
(Copper 90th percentile value) (The copper action level)

Certification:

Check and complete the correct statement for lead as determined by the above results. If you have an exceedance and you are a community system you must comply with the Consumer Confidence Rule requirement at 310 CMR 22.16A (4) (i) 6.

- ☐ My system was at or below the lead action level
- ☐ My system exceeded the lead action level and _____ sampling sites exceeded the lead action level.
(insert # of samples)

Check and complete the correct statement for copper as determined from the above results. If you have an exceedance and you are a community system you must comply with the Consumer Confidence Rule requirement at 310 CMR 22.16A (4) (i) 6.

- ☐ My system was at or below the copper action level
- ☐ My system exceeded the copper action level and _____ sampling sites exceeded the copper action level.
(insert # of samples)

My signature below indicates that all sampling sites on this report have been previously approved in writing by the DEP and that I have complied with 310 CMR 22.06B(7) I have also notified the owner of each sampling site of their sites' individual results. I certify under penalty of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best of my knowledge and belief.

REMARKS: _____

Name: _____ City/Town: _____ PWSID # _____

Signature of PWS Or Owner's Representative: _____ Date: _____

Name (Print): _____

Page ____ of ____

** Please submit FORM LCR-C along with this form.

How to Evaluate your Results? - Calculating the 90th Percentile (See 310 CMR22.06B)

Name: _____ City/Town: _____ Date: ____/____/____
 PWSID # : _____

Lead and copper analytical results are evaluated against an action level, not an MCL. The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period is greater than 0.015 mg/L (i.e., if the 90th percentile level lead level is greater than 0.015 mg/L). The copper action level is exceeded if the concentration of copper in more than 10 percent of tap water samples collected during any monitoring period is greater than 1.3 mg/L (i.e., if the 90th percentile level copper level is greater than 1.3 mg/L). All samples that meet the proper site selection and sample collection procedures are used to determine the 90th percentile calculation, even if you collect samples from more sites than required.

The 90th percentile is calculated separately for lead and copper. The procedure for determining the lead 90th percentile value is as follows:

If you are required to collect more than 5 samples:

Step 1: Place **lead** results in ascending order (from lowest to highest value) with lowest value at # 1.

Step 2: Multiply the total number of samples by 0.9.

Step 3: Compare the 90th percentile level to the action level of 0.015 mg/L (i.e., 15 parts per billion (ppb)). If your 90th percentile value is higher than 0.015 mg/L, you have an exceedance.

*Repeat this procedure for **copper** sample results, except compare the 90th percentile copper level against its action level of 1.3 mg/L. If your 90th percentile value is greater than 1.3 mg/L, you have an exceedance.*

If you are required to collect 5 samples:

Step 1: Place lead or copper results in ascending order.

Step 2: Take the average of the 4th and 5th highest sample. This is your 90th percentile level.

Step 3: Compare the 90th percentile level against the lead or copper action level.

REMEMBER: All sample results taken during the monitoring period must be included in your 90th percentile calculations, unless a result has been invalidated by the DEP. If a sample is invalidated, its replacement sample must be included in the 90th percentile calculation. Further, a 90th percentile level **must** be calculated even if the system has collected less than the minimum required number of samples. School samples are not included unless the school is a public water system.

Below are two examples to help demonstrate the 90th percentile calculation for systems that are required to collect more than 5 samples. The first example explains how to determine whether you have exceeded an action level when your 90th percentile level is a whole number. The second example shows how to make this determination when your 90th percentile level contains a decimal. This may happen when you collect more than the minimum required number of samples.

Example 1: Determining Whether An Action Level Has Been Exceeded When the 90th Percentile Sample # is A Whole Number	
Sample Rank	Sample Value (mg/L)
1	0.000
2	0.000
3	0.002
4	0.005
5	0.005
6	0.006
7	0.006
8	0.010
9 (90th %)	0.015
10	0.020
List all samples in ascending order (lowest to highest) Take the total # of samples x 0.9 = the 90 th percentile value (10 x 0.9 = 9) Compare sample #9 to the lead action level The system does not exceed the lead action level because its 90th percentile level (the 9th sample) is 0.015 mg/L, which equals the lead action level. To have an exceedance, the 90th percentile level must be greater than 0.015 mg/L.	

Name: _____
PWSID # : _____

City/Town: _____
Date: ____/____/____

In Example 2 below, the system is required to collect a minimum of 10 valid samples. It collects 12 valid samples and thus, all 12 are used in the 90th percentile calculation. In this example, the 90th percentile level is 10.8 (i.e., *12 samples x 0.9 = 10.8*).

Example 2: Determining Whether An Action Level Has Been Exceeded When the 90th Percentile Sample Number Contains a decimal.	
Sample Rank (Number)	Sample Value (mg/L)
1	0.000
2	0.000
3	0.002
4	0.005
5	0.005
6	0.005
7	0.006
8	0.006
9	0.010
10	0.014
11	0.018
12	0.020

DEP determines the 90th percentile as follows:

Using Rounding: DEP's policy is to:

1. Round down to the nearest whole number if your decimal portion is 0.4 or lower.
2. Round up to the nearest whole number if your decimal portion is 0.5 or higher.

In this example, the 90th percentile sample is 10.8, and you would round up to 11. So, the sample that is ranked 11th in the list represents the 90th percentile level that you compare to the relevant action level.

Using rounding, the 90th percentile result is 0.018 mg/L and the system exceeds the lead action level of 0.015 mg/L.